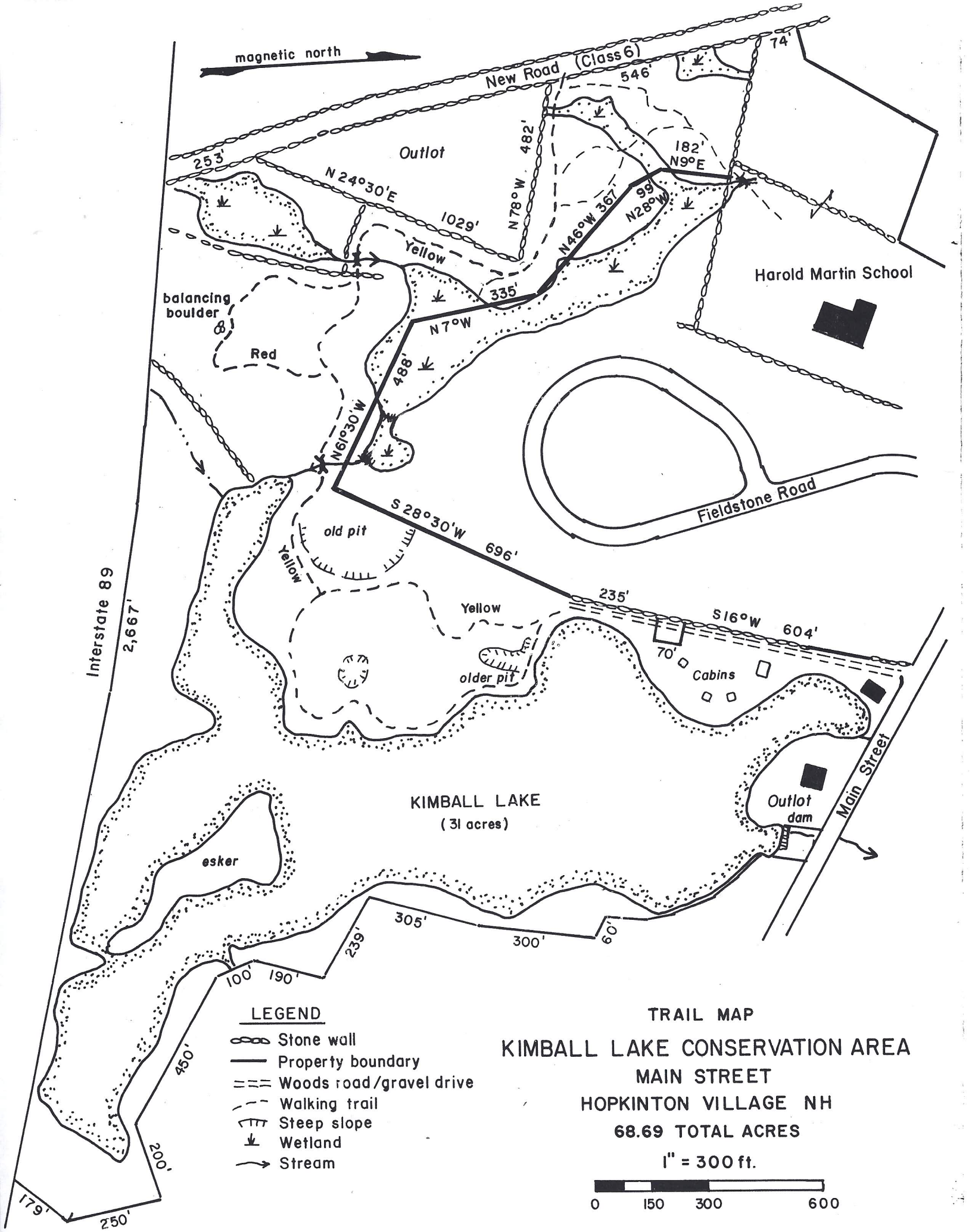
magnetic north
New Road (Class 6)
546'
74'
Outlot
253'
N 24°30'E
1029'
N 78°W
482'
182'
N9°E
N46°W 367'
99'
N28°W
Yellow
335'
Harold Martin School
balancing boulder
Red
N7°W
488'
N61°30'W
Fieldstone Road
S 28°30'W
696'
old pit
Yellow
Yellow
235'
S16°W
604'
70'
Cabins
older pit
Interstate 89
2,667'
KIMBALL LAKE
(31 acres)
esker
Outlet dam
Main Street
305'
300'
60'
239'
100'
190'
450'
200'
179'
250'
LEGEND
Stone wall
Property boundary
Woods road/gravel drive
Walking trail
Steep slope
Wetland
Stream
TRAIL MAP
KIMBALL LAKE CONSERVATION AREA
MAIN STREET
HOPKINTON VILLAGE NH
68.69 TOTAL ACRES
1" = 300 ft.
0
150
300
600

SELF-GUIDING INTERPRETIVE NATURE TRAIL
KIMBALL LAKE, HOPKINTON, NH

Introduction

Kimball Lake is near the site of grist and saw mills dating back more than 200 years. Over 150 years ago, water was diverted from Smith Pond through an artificial ditch and brook to supplement the water in what was apparently the same mill pond, to increase the water power for a clapboard mill.

Harold Kimball, nearly 60 years ago, had a new pond built by damming up what is now its present outlet. He also had the several cabins built and the Horseshoe Restaurant developed, managing the area as a resort. At his death he left the pond, the land immediately around it, the Horseshoe Restaurant and four of the cabins to the Swiftwater Girl Scout Council, which recently gave all of these to the Town of Hopkinton. Since then, plans for use of the property have been in the process of being developed by the town's Kimball Lake Committee and Selectmen for the benefit of the town's citizens.

Fishing and use of boats without motors and walking the trail are all allowed without permission, which is required for picnicking and use of the cabins. Camping other than at the cabins, hunting, trapping, collecting any animal or plants and use of off road vehicles and bicycles are not permitted.

STOP 1. *Can you tell by examining those old stumps back at the edge of the pond who cut trees there some years ago? And can you guess by looking at the vegetation ahead and to the right what this land was used for in the past?*

Why beavers, of course, cut those trees. You may not know that beavers were completely trapped out of southern New Hampshire, probably well before 1800, and returned only 40 to 60 years ago. Since then their ponds have provided valuable habitat for many forms of wildlife and also greatly helped in water conservation, despite sometimes causing local problems.

Now look ahead and to the right again and note the low evergreen shrub (a juniper) and the dead and dying gray birches. These both started in the open, the juniper when the land was probably used for pasture and the birches after the pasture was abandoned. Now both are being shaded out by the return of the forest, here mostly of white pines.

STOP 2. *What kind of trees are these, and what is their relationship to the pines?*

The large tree and most of the smaller ones are hemlocks. Hemlock is the longest lived and one of the most shade enduring of our native trees. This allows its seedlings to grow where

pines, oaks and other less shade enduring trees have created too much shade for their own seedlings to grow. Thus hemlock tends to succeed other trees and become a final or "climax" stage of forest barring a natural or man-caused major disturbance.

Hemlock is not as valuable a timber tree as white pine but is more valuable for wildlife, its dense foliage and longer lived lower branches providing both shelter and food for such wildlife species as deer and porcupines.

STOP 3. *Can you identify the small evergreen plants on the forest floor here, and do you know what they were once used for?*

Often called ground cedar or ground or princess pine, these are actually primitive, non-woody plants known as club mosses. With ancestors that grew to be 60 feet tall millions of years ago, they are more closely related to ferns than true mosses. Instead of reproducing by seed they do so by tiny spores, which ripen in late summer or fall. These were once used for making flashes for photographs and fireworks!

Look here and further along for other small evergreens, and, in season, for such non-evergreen plants as Canada mayflower (also called wild or false lily-of-the-valley), ladyslippers, Indian pipes and ferns—but don't pick any of these!

STOP 4. *What kind of a tree is this? If you know, what else do you know about it as a species?*

Note the smooth, gray bark and toothed edges of its leaves or its pointed buds, depending on the season. It is a beech, a tree species able to stand even more shade than hemlock. Similarly, it often gets started in the shade of other trees and keeps its lower branches alive longer. As beech trees mature, they produce nuts every few years that are of great value as food for many wildlife species. Beech trees can be used for making various wood products but are often so defective that they are used only for firewood or left to benefit wildlife. In time some may develop into good den trees, providing homes as well for various animals.

STOP 5. *Can you guess what made that big depression in the ground on your right?*

While it may possibly be where gravel was dug many years ago, it is probably a "kettle hole." If you remember your earth history, you will recall that a vast ice sheet or glacier covered much of North America for thousands of years up until perhaps 12,000 years ago, when a warming climate caused it to melt and retreat. Well, "kettle holes" were caused by large blocks of ice breaking off the retreating ice sheet, getting embedded and then melting. Deeper kettle holes became bog ponds like Smith Pond and several other small ponds in Hopkinton.

STOP 6. *To your left across the pond is what is called an "esker", which in this case now happens also to be an island. Can you now guess what caused it?*

An esker is a steep-sided ridge of gravel laid down by a torrential stream flowing within or under the continental ice sheet as it melted. Some eskers are miles in length and in places up to 100 feet in height.

To your right are sprouts from the roots of a chestnut tree killed many years ago. Do you know the history of our native chestnut tree?

The American chestnut was once one of our most valuable forest trees, producing remarkably fine and rot resistant lumber, poles and fence posts, as well as nuts relished by both man and wildlife. Early in the present century a disease called the "chestnut blight", accidentally introduced into America killed off almost all the chestnut trees in this country. While sprouts often still come up from their roots, these generally die back before they get to be any size. We hope they may eventually build up a resistance to the disease and again become large trees.

Now look ahead to the left at the small dead hemlock. Can you guess what killed it? Look closely at its base.

STOP 7. *Do you know what kind of a tree this is and also what those with flaky bark both behind and ahead of you are? If so, what are they good for besides holding the soil, providing shade, etc.? And what are the little evergreen plants under them?*

This is a red oak, and the flaky-barked trees are white oak. Where grown for timber, oaks can produce wood for making furniture, flooring, paneling and many other products. The large red oak acorns and smaller white oak acorns are relished by many forms of wildlife such as deer, squirrels, wood ducks and wild turkeys.

The little evergreen plant on the forest floor is checkerberry or wintergreen. Its younger leaves when chewed have a pleasant flavor.

STOP 8. *Who are the contestants you have just passed on your right and above you on your left, and which are winning the "battles?"*

Competition for growing space, water and nutrients in the soil and especially for sunlight is very keen among forest trees. Those you have just passed and are on your left as you look back are red and white pines. Since white pine is a longer lived and more shade enduring species than the red pine, the more dominant white pines should win unless they happen to get killed by lightening or a forest fire.

Above you is a much more unusual situation—a red pine and a red oak in a "death struggle." Who knows which will win?

Note on the forest floor here another club moss, called tree club moss because of its resemblance to tree seedlings, and another evergreen plant called pipsissewa, which has attractive little flowers in summer.

STOP 9. *You probably know what happened to the area on your left in the recent past, but can you guess why it was worth doing? What is happening to it now?*

This is, of course, a gravel pit. Gravel is in fact by far the most valuable of New Hampshire's minerals that is mined or excavated. Probably all the best deposits were laid down by the continental ice sheet or streams associated with it. Here you can see that the vegetation, from the sweet fern near your feet to the gray birches, aspens and pines more or less around you, is returning naturally to the area.

Note the contrast between this semi-open area returning to forest and the older, dense forest ahead. This "edge effect" provides a much greater variety of habitat for wildlife than either type of area by itself.

STOP 10. *Although these boulders may have been moved a short distance in the recent past by heavy equipment, what is their origin and how did they get to this general area?*

These two stones, judging from their different appearance, have somewhat different origins. Both, however, were apparently formed from molten rock under the earth's surface many millions of years ago as parts of extensive layers of bedrock. They eventually were broken off, probably by the great ice sheet, and were carried, perhaps many miles, to this vicinity and somewhat rounded in the process by the ice or streams associated with it. Boulders of this sort are called "glacial erratics." Note the large crystals in the one on the right.

STOP 11. *Are these trees ahead of you red or white pines?*

Neither; they are pitch pines, which can be distinguished by their rough bark, scraggily appearance and clusters of 3 needles as opposed to those of red pine with 2 and white pine with 5. Pitch pine is a so-called "fire species", its thick bark often enabling it to survive forest fires that kill competing species; the heat of the fires also help to open the cones of pitch pine so that the seeds drop out. In the absence of fires, however, the pitch pine doesn't persist because, like red pine, it is shorter lived and less shade tolerant than white pine and so is generally succeeded by it.

STOP 12. *You can see that some trees were cut here and elsewhere on this property in a past lumbering operation. Why were not all the larger trees harvested on that occasion?*

If all the larger trees had been removed, this area would have become one of devastation and probably grown up largely to "weed trees" such as gray birch, aspen and pine cherry. Instead, the forest remains potentially productive for more and better quality timber as a result of selective cutting of the right sort. As it has turned out, however, this area is now being managed for recreation, and so lumbering in the future will presumably be carried out only if this improves it for this purpose.

STOP 13. *Can you guess how those small pines on your left got so deformed?*

Look closely, and you can see that they have had larger trees or branches falling against them. They still seem to be healthy and should continue to grow as long as they have enough sunlight and should straighten up somewhat.

STOP 14. *What do you think caused this hollowed out area on your right, the great ice sheet perhaps?*

No, that is another former gravel or sand pit, obviously a small one abandoned quite a few years ago. It shows, however, that an area of this sort given enough time and source of seed, will return to forest, the natural vegetation of most of the world with enough moisture and long enough growing seasons. Can you identify the different trees here?

STOP 15. *Can you tell something about the history of this big white pine?*

The larger branches indicate that this tree for much of its life was growing in the open, there not being enough shade to kill its lower branches until they got large. The several trunks indicate that the original leader was apparently broken off or killed and that side branches grew up into several trunks. While snow damage might have been responsible, killing of the original leader and perhaps subsequent leaders by a major pest of white pine called the white pine weevil seem more likely.

We hope you have enjoyed walking this trail and found it interestingly informative. If so, we would appreciate it if you would tell your relatives and neighbors about it. This is a project of the Town of Hopkinton's Kimball Lake Committee, with help from the Hopkinton Girl Scouts.

MAIN STREET
KIMBALL LAKE
PROPERTY LINE
TRAIL
GRAVEL PIT
ESKER
I - 89